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characters, when at least three sorts of sugar are tested (with exclusion of muscle sugar). (7) Not only must the formation of gas be determined but also the progress of the same, the total quantity, and the quantity of CO_2 . (8) For the differentiation of species and varieties it is of value to determine by titration the total amount of acid in 1 per cent sugar bouillon, as well as the germicidal power of such cultures on the bacteria themselves. (9) The division of bacteria into acid and alkali producers must be given up and the conditions governing the production of acid investigated more critically for each species. (10) The existence of fermentable carbohydrates in the digestive tract and in the fluids of the body is probably very favorable to the establishment and multiplication of pathogenic bacteria (both facultative anærobic and obligate, especially the latter).—ERWIN F. SMITH.

Algal Parasite on Coffee.—Under the title *Cephaleurus coffeæ*, eine neue parasitische Chroolepidee, Dr. F. A. F. C. Went describes in *Centrb. f. Bak. u. Par., Allg.*, Bd. I, No. 18-19, 1895, p. 681, an alga which he has found attacking the Liberian coffee at Kagok-Tegal in Java. This parasite appears on the leaves and berries in the form of round orange-brown spots which look bristly to the naked eye. The alga not only forms a thallus on the surface but sends its threads deep into the intercellular spaces of the host. The presence of the parasite in and on the leaf causes an interesting, protective hypertrophy of the surrounding tissue, the further progress of the alga being soon limited by a dense encircling mass of thick-walled, non-lacunose tissue, developed out of the palisade cells and spongy parenchyma of the leaf. No algal threads were found in this tissue. The berry not being able to defend itself in this way suffers most, becoming gradually brown and finally black and wrinkling and drying prematurely, so that the seed does not ripen. All parts of the alga are subject to the attacks of a fungus, which also appears to be capable of growing in the berries apart from the threads of the alga, but the relation of which to the latter and to the causation of the disease is left by the author in a rather unsatisfactory state. The paper is accompanied by a lithographic plate showing details of the alga and sections of the normal and hypertrophied tissue.—ERWIN F. SMITH.

ZOOLOGY.

On Bodo urinarius.—Although the discovery of certain peculiar infusoria in human urine dates so far back as 1859, but little is known of these animalculæ. M. Barrois has been investigating the subject

and has recently published his conclusions. According to his account Hassall was the first to detect this microscopic creature in its chosen habitat. He described it under the name of *Bodo urinarius*, as an animalcule $\frac{1}{1800}$ inch long and $\frac{1}{3000}$ inch wide, of rapid motion, generally round or oval, presenting a granular appearance, sometimes they are broader at one end. The long lashes, by means of which they move, are variable in number and proceed when there are two or three to each animalcule from opposite extremities; reproduction by longitudinal fission. In 1885 Kunstler found "small monads . . . flagellate, transparent and very active . . . probably *Bodo urinarius*."

In reviewing the subject, M. Barrois gives detailed accounts of these discoveries, and of the condition of the urine in which they appear. He then describes his own methods of investigation, and compares the drawings of specimens, after Hasslar and Kuntsler, with the infusoria he himself had found existing under similar conditions as those described by the authors mentioned. M. Barrois lays particular stress upon the fact that the infusoria found by him, only appeared in urine plainly alkaline, which contained animal matter (broken down epithelial cells, pus, albumen), and which had been exposed sometime to the air. In no case did he find them in fresh urine. Hassall's notes show a similar set of conditions in his case. Kunstler, however, claims to have found the infusoria in fresh urine in company with several species of bacteria. M. Barrois is of the opinion that Kunstler was deceived as to the age of the urine given him for examination, since in all other respects the conditions (as to animal matter, etc.) agree with those of Hassler and the author. In view of these conditions M. Barrois does not agree with the statement made that *Bodo urinarius* is a parasite. He is rather of the opinion that it exists in the air in a spore-like form ready to develop whenever it is brought in contact with a suitable nidus. This it finds in urine conditioned as above described.

In the course of his discussion, M. Barrois refers to *Trichomonas vaginalis* Douné, found by Salisbury in the urine and vaginal mucous of a young girl aged sixteen, supposed to be parasitic, and to certain Trichomonads found by Marchand and also by Miura; in all probability *T. vaginalis*. In the two latter cases, the infusoria was found living in freshly voided urine, so it would appear to be a true parasite. In both cases the urine was loaded with decomposing matter.

By an ingenious experiment, Miura demonstrated that the Trichomonads lived in the urethra only, and was not found in the bladder.

As to the classification of the Monads, M. Barrois considers it extremely unsatisfactory, since it is based on the number and disposition of

the flagella. In fact, *Bodo urinarius*, by reason of its polymorphism, can have no place in such a scheme of classification.

In conclusion, the author compares *Bodo urinarius* with *Oekomonas mutabilis* Saville-Kent, which propagates both from spores and by fission in infusions of vegetable matter, and also with *O. rostratum* Sav.-Kent, found in both fresh and salt water containing vegetable debris. He finds the three species so similar in appearance, that one might infer that their only difference is in their habitat.

M. Barrois repeats, as a final statement, that *Bodo urinarius* Kunstler (= *Cystomonas urinaria* R. Bl. = *Plagiomonas urinaria* M. Braun) can hardly be given a place among the parasites of man. (*Revue Biol.*, Feb., 1895.)

Influence of the Winter 1894-1895 upon the Marine Fauna of the Coast of France.—M. Pierre Fauvel calls attention to the considerable influence which the exceptional lowering of temperature, and long duration of cold, during the last winter, exercised upon the marine fauna of the coasts of France.

Sharp frosts, at the time of high tide, would destroy innumerable quantities of animals that the ebb tide would leave exposed. Annelids, Actinians and Fish were found dead or unconscious, paralyzed by the cold. This mortality, strange to say, extended to depths which the change of temperature could not have affected directly.

Another effect of the cold has been to bring in shore animals ordinarily seen in deeper water, and also certain species very rare or entirely unknown in our fauna. The Spring was marked by an extraordinary abundance of *Balanus porcatus*, which covered with a continuous bed the surface of the boulders and rocks, and by the return of the Mussels which had nearly disappeared. During some weeks *Mytilus edulis* took possession of all the rocks exposed to the southwest wind and formed veritable "moulières" at Dent, Pointe de Réville and at Draguet. Parallel changes are noticed in the annelid fauna. Thus certain species which were common last year have either become rare, or totally extinct, while new species are continually taking their places. (*Revue Scientif.*, 1895, p. 374.)

Preliminary Outline of a New Classification of the Family Muricidæ. By F. C. Baker (*Bull. Chicago Acad. Sciences*, 1895). On reading this paper we regret to find that Mr. Baker has been putting his new wine into old bottles. In other words, he has borrowed largely from the phraseology of a conchological paper published in 1892, as the following parallel passages show :

PILSBRY, 1892.

"For several years the writer has been accumulating data bearing upon the natural classification of the Helicoid land snails. It has been thought desirable to place before students of this group some of the general results attained, and to invite their friendly criticism.

" * * * the author's aim being simply to place before malacologists the outlines of a classification essentially modern and essentially original."¹

BAKER, 1895.

"For several years the writer has been accumulating data bearing upon the natural classification of the Gastropod family Muricidæ. It has been thought desirable to place before students some of the results elucidated, and to invite their friendly criticism.

"The author's aim in the present paper has been simply to place before malacologists the outline of a classification essentially modern and essentially original."

¹ The above quotation is from Pilsbry's Preliminary Outline of a New Classification of the Helices, Proc. Acad. Nat. Sci., Phila., 1892, p. 387. Good taste should have forbidden the reproduction by Mr. B. of the second paragraph here quoted, the egotism of which is excusable only in view of its undeniable truth in relation to the 1892 publication. This excuse seems to be lacking in the case of Mr. Baker's paper.

More to the same effect might be quoted, but the above is sufficient on this score.

We do not wish to imply that there is any great harm in using borrowed phrases; they are not copyrighted, and their original author probably does not expect to make use of the same sentences again; but, still, if anybody has ideas worth expression, they surely ought to be worthy of fresh verbiage.

In regard to Baker's subfamilies, we do not see that they differ from those of Tryon and Fischer, except that Baker includes *Coralliophila* and its allies as a third subfamily. As this group lacks teeth, it seems much better to treat it as a family. In this connection it may be well to state that *Latiaxis mawæ* is not a monstrosity as Baker's foot-note (p. 188) would seem to imply.

The diagnoses of subfamilies given are rather absurd in view of their contents, which contradict every word of the descriptions. Not all the genera placed in "*Muricina*" have spinous or foliated varices, not all have the nucleus of operculum apical, and not all have few cusps on the rhachidian teeth. What is the use, then, of such a "subfamily?" Among the genera we notice, on a cursory inspection, that *Murex tenuispina* LAMARCK is quoted as type of *Murex* Linné. How can

Lamarck's species, published a half century later than Linnæus' genus, be the type of that genus? The type of *Pterorhytis* Conrad ("Pterorhytis" Baker) is not *Ocinebra nuttalli* Conr. but *Murex umbrifer*. Other mistakes of this nature occur, but we have not space to notice more.

The citation of the pre-Linnæan "genera" of Klein is contrary to all codes of nomenclature recognized by modern zoologists, and the continuation of such anomalies is to be deprecated. In retaining *Tribulus*, *Pentadactylus*, etc., as of Klein, Mr. Baker is clearly in error.

Most, if not all of the innovations in nomenclature proposed in this paper, are borrowed from Fischer and Dall. We find no new facts in regard to either soft anatomy or shell structure in the entire article, so that Mr. Baker's claims for originalty and modernness do not seem sufficiently apparent to call for special remark.—H. A. PILSBRY.

Herpetology of Angola.—The Herpetology of the Portugese possession in Western Africa, just published by Barboza du Bocage at Lisbon comprises descriptions of 185 species, distributed as follows; Chelonia 10, Loricata 3, Sauria 57, Ophidia 74, Batrachia 41. Of the specimens described, 62 species and varieties belong exclusively to the fauna of Angola and Congo. In order to better appreciate the relation which the herpetological fauna of these two areas bears to that of the rest of Africa, a table of the geographical distribution of the species described is given and forms an important adjunct to the paper. A number of new species are described, and synonymy is corrected. The paper is handsomely illustrated, and forms an important contribution to the knowledge of the subject.

Among the points of interest embraced in the paper are the discovery of the new species: *Naja anchietae*, *Dendraspis neglectus*, *Vipera heraldica* and *Python anchietae*; the southern range of the West African *Osteolemus tetraspes*, *Feylinia currorii*, *Atheri squamigera*, and *Hylambates aubryi*; the northern range of the South African *Mancus macrolepis*, *Zonurus cordylus*, etc. and westward range of the central African *Causus resimus*.

Zoological News. BIRDS.—In regard to the question of the value of the forms of the tongues of birds for classification, Mr. F. A. Lucas concludes that in the Woodpeckers the evidence favors the view that the modifications of the tongue are directly related to the character of the food, and are not of value for classification. (Bull. No. 7. Div. Ornith. and Mam. U. S. Dept. Agric., 1895.)

In the study of the hyoid bone of certain parrots, Mr. Mivart finds that the whole order of Psittaci is distinguished from every other order of birds by the shape of its hyoid. The distinctive characters are (1) Basihyal much broadened posteriorly. (2) Basihyal developing on either side a forwardly and upwardly directed process. (3) An *os entoglossum* in the form of a single broad bone with a considerable central foramen, or, in the form of two lateral parts, entoglossals, medianly united in front by cartilage and leaving a vacant space between this and their attachment behind to the basihyal. (Proceeds. Zool. Soc. London, 1895, p. 162.)

MAMMALS.—Mr. Outram Bangs distinguishes the Skunks of eastern North America as follows:

Mephitis mephitis (Shaw), ranging through the Hudsonian and Canadian zones of the east, south to about Massachusetts.

Mephitis mephitis elongata (Bangs), found in Florida and the southern Atlantic states and ranges north to about Connecticut.

Both of these species differ from the western skunks, which form a separate group.

Among the latter the author recognizes Richardson's *Mephitis americana* var. *hudsonica* as a good species which must therefore bear the name *M. hudsonica* (Richardson). It is the largest of all the skunks, and has an extensive range in the northern prairies, extending east as far as Minnesota. (Proceeds. Boston Soc. Nat. Hist., Vol. XXVI.)

ENTOMOLOGY.¹

Insects in the National Museum.—The staff of the Department of Insects of the U. S. National Museum has been reorganized, as a result of the sad death of the former Honorary Curator, Professor C. V. Riley.

The reorganization has been effected by the appointment of Mr. L. O. Howard, Entomologist of the U. S. Department of Agriculture, to the position of Honorary Curator to the Department of Insects; of Mr. Wm. H. Ashmead to the position of Custodian of Hymenoptera, and Mr. D. W. Coquillett to the position of Custodian of Diptera. All museum custodians are honorary officers. Mr. M. L. Linell will remain as general assistant to the Honorary Curator.

The Department is, at present, in excellent working condition. It contains a very great amount of material in all orders, and, in many

¹ Edited by Clarence M. Weed, New Hampshire College, Durham, N. H.